

What Is Claimed Is:

1. A self propelling catheter introducer system for exploring a body cavity, comprising:
 - a flexible tubular catheter having a length extending from a distal end for introduction in the cavity to a proximal end opposite the distal end;
 - a tubular working channel formed within the catheter, adapted for guiding medical tools along the length of the catheter;
 - a steering section of the catheter disposed adjacent the distal end, adapted for pointing the distal end in a desired direction; and
 - an everting tube applying a propulsive force to the tubular catheter.
2. The system according to claim 1, further comprising a control unit for controlling operation of at least one of the everting tube and steering section.
3. The system according to claim 1, further comprising a light vision tool detachably connected to the distal end of the catheter.
4. The system according to claim 1, wherein the everting tube comprises:
 - a flexible tube having an external surface folded on itself, the external surface defining an outer portion substantially non-moving relative to the body cavity, and an inner portion adjacent the tubular catheter;
 - at least one thrust collar secured to the tubular catheter, adapted to transmit a force from the flexible tube to the tubular catheter; and
 - a drive unit adapted to selectively translate the inner portion relative to the outer portion of the external surface.
5. The system according to claim 4, further comprising an anchor disposed around the tubular catheter at a point of entry of the body cavity, the anchor being substantially stationary relative to the body cavity.
6. The system according to claim 5, wherein the outer portion is attached to the

anchor.

7. The system according to claim 5, wherein the inner portion is attached to the anchor.

8. The system according to claim 4, wherein the drive unit is a gear drive to translate longitudinally the inner portion.

9. The system according to claim 4, wherein the drive unit is powered from outside the body cavity.

10. The system according to claim 8, wherein the gear drive applies a force to a surface of the flexible tube.

11. The system according to claim 4, wherein the flexible tube material has azotropic properties.

12. The system according to claim 4, wherein the flexible tube is made of one of silicone, PTFE, and PE.

13. The system according to claim 4, wherein the flexible tube is made with a reinforcing material.

14. The system according to claim 13, wherein the reinforcing material is a braid.

15. The system according to claim 4, wherein the flexible tube contains a fluid.

16. The system according to claim 15, wherein the fluid is a lubricant.

17. The system according to claim 4, wherein the drive unit comprises a pressurized fluid selectively applying a pressure force to an internal surface of the flexible tube.

18. The system according to claim 17, further comprising a pump for pressurizing the pressurized fluid and a line for distributing the pressurized fluid.

19. The system according to claim 17, further comprising a control unit for controlling pressurization of the fluid contained in the everting tube.

20. The system according to claim 8, further comprising a control unit for controlling movement of the gear drive.

21. The system according to claim 4, further comprising a control unit for controlling operation of the drive unit.

22. The system according to claim 1, wherein the steering section comprises a plurality of push-pull wires secured to the distal end of the catheter, circumferentially disposed along the length of the catheter, adapted to be individually extended and retracted to point the distal end in the desired direction.

23. The system according to claim 22, wherein the steering section further comprises a flexible tube-like structure to guide movement of the plurality of push-pull wires.

24. The system according to claim 1, wherein the steering section comprises bellows that can be extended and contracted in a direction along the length of the catheter, and control wires disposed circumferentially around the catheter to control extension of the bellows, thus pointing the distal end in the desired direction.

25. A method of propelling a catheter for exploring a body cavity, the catheter having an outer surface including an everting tube, comprising:

inserting a distal end of the catheter through an opening of the body cavity;
securing an anchor portion of the catheter to the opening, the catheter being
slidable in the anchor portion, a surface of the everting tube being secured to the
anchor portion; and

translating the evertng tube relative to the anchor portion, thus inserting into or withdrawing the catheter from the body cavity.

26. The method according to claim 25, further comprising providing a pressurized fluid in the evertng tube, such that a folded-over end of the evertng tube translates relative to the anchor portion, the folded-over end abutting a thrust collar secured to the catheter to apply a propulsive force to the catheter.
27. The method according to claim 25, further comprising activating a drive mechanism to translate a portion of the evertng tube in contact with the catheter relative to the anchor portion.